

Impact Assessment Challenges with Emerging Fuels



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New Uncertainties



- **As we move away from petroleum based fuels toward fuels derived from cultured plants and animal products there are new types of uncertainties.**
- **Chemicals used to:**
 - fertilize,
 - promote growth
 - Inhibit weeds and pests
- **Anthropogenic chemicals in water**
 - Brown/gray water used for fuel crops
 - Endocrine disruptors
- **Animal diseases**
 - Prions



Example: Round-Up



- **Glyphosate herbicide (Round-Up)**
 - Applied with surfactant
 - Polyethoxylated tallow amine (POEA)
 - Possible endocrine disruptor
 - Wildlife toxicity
- **Plants genetically engineered to tolerate Round-Up, e.g., soy, corn**
- **Little is known about fate of glyphosate during biofuels production and use.**

1/28/2009

3



Example: Prions



- **Ancient, tough organic life form?**
 - Mad-Cow, Creutzfeldt-Jakob (humans)
 - Impacts brain and neural tissue through ingestion
 - Incurable, fatal
- **Structural stability**
 - Resistant to denaturation by chemical or physical agents
 - 1N NaOH in autoclave for 30 minutes
- **Current protection is through inspection and control of high risk food material**
- **Little is know about fate of Prions during production and use of biofuels using tallow**

1/28/2009

4